

CLEARINGHOUSE FOR FEDERAL SCIENTIFIC AND TECHNICAL INFORMATION, CFSTI  
DOCUMENT MANAGEMENT BRANCH 410.11

LIMITATIONS IN REPRODUCTION QUALITY

Accession #

AD 606357

- ☒ 1. We regret that legibility of this document is in part unsatisfactory. Reproduction has been made from best available copy.
- ☐ 2. A portion of the original document contains fine detail which may make reading of photocopy difficult.
- ☐ 3. The original document contains color, but distribution copies are available in black-and-white reproduction only.
- ☐ 4. The initial distribution copies contain color which will be shown in black-and-white when it is necessary to reprint.
- ☐ 5. Limited supply on hand; when exhausted, document will be available in Microfiche only.
- ☐ 6. Limited supply on hand; when exhausted document will not be available.
- ☐ 7. Document is available in Microfiche only.
- ☐ 8. Document available on loan from CFSTI (TI documents only).
- ☐ 9.

Processor: *ent*

THE ECONOMICS OF NAVY PAY

Alain C. Enthoven

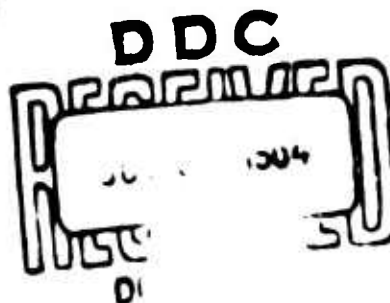
✓  
P-1051

*Rev*  
2 April 1957

Approved for OTS ~~Jeana~~

COPY	OF	
HARD COPY	\$.	1.00
MICROFICHE	\$.	0.50

19 p



## THE ECONOMICS OF NAVY PAY

Alain C. Enthoven

The recommendations of the special Department of Defense committee on military pay, headed by Ralph T. Cordiner of General Electric, have been presented recently to Secretary Wilson, to the President and to the Congress. Although they are based upon an extensive and detailed review of the whole military pay structure, they embody three rather simple ideas. First, the Committee recommends a salary increase in all grades, with the largest increases going to the higher officers. For example, the monthly pay of a Commander on active duty now begins at \$474 and rises to \$670 after twenty-six years of service, while under the new plan it would begin at \$710 and rise to a maximum of \$840 after six years in grade. The reason for an over-all increase should be obvious. The higher ranks are favored in order to offset partially the compression in salary scales which has taken place over the past half century.

Secondly, the Committee recommends a sharp decrease in the extent to which longevity affects salary. At the present time, longevity continues to increase earnings, in some cases, up to thirty years of service; under the Cordiner plan, only longevity in grade is relevant and this up to a maximum of six years.\* In the case of the Commander on active duty, salary can increase as much as by 42 per cent merely

---

\* There is but one exception to this. Pay in the proposed new grade E-9 has a final increase upon completion of the eighth year in grade.

because of longevity. Under the new proposal, the maximum increase for years in grade is about 18 per cent. Finally, by establishment of extra grades and "proficiency pay," the plan makes it possible to offer greater pay to those enlisted men whose services are particularly in demand. In effect, this would mean the creation of salary differentials favoring the highly trained technicians.

The reaction to the Cordiner proposals has been mixed. The Army-Navy-Air Force Journal enthusiastically described them as "refreshing." Most Air Force officers strongly support them. On the other hand, the New York Times has been hesitant. "There is no panacea for all such problems," it editorialized. The plan raises "a budgetary problem," and "any sort of differential in compensation always raises...a problem of morale." In the Congress, the plan has had the misfortune of coinciding in its arrival with a record peacetime budget. The estimated initial cost of five or six hundred million dollars has not endeared the proposal to those who believe that federal spending is already too high.

The most eloquent attack on the philosophy of the Cordiner plan which I have encountered appeared in the December 1956 issue of the Proceedings. In an article entitled "The Operators," Chief Quartermaster William T. Stanley, U.S.N., criticized the principle of salary differentials favoring technical specialists over those who operate the equipment on the ground that it is the latter who bear the responsibility. "A mistake by an operator can...make all for naught the efforts of his fellow shipmates on the team," whereas "the technician cannot lose a battle by a poor decision." Quartermaster Stanley presents his case as

a matter of principle. He chooses not to consider the quantitative details of the Cordier recommendations. Indeed, he is wise in this for it would be extremely difficult to determine a priori just how great the differentials should be. To do this one would have to answer some hypothetical questions beginning with the clause "what would happen if...?" But the principle of whether or not there should be salary differentials, and for whom, can be discussed independently of the quantitative issues, and it is on this point that I shall join in the debate.

There are several points of view from which one might analyse the salary differential question and the conclusions reached from one viewpoint may differ from those reached from another. In making a final judgment, it may well be desirable to work out a compromise between some of them. Quartermaster Stanley has chosen to express the special point of view of the operator. In contrast, I shall proceed from the point of view of the taxpayer and the economist. From this standpoint, one criterion for military pay is of predominant importance: within a given military budget, salary scales should be chosen in such a way as to maximize the effectiveness of the military establishment.

Before discussing the principles at issue, I would like to describe the factual background of the debate. Though I am certain that there will be little disagreement over these facts, I believe that it is important to emphasize them here because they seem to have been overlooked in most of the discussion of this problem. First of all, salary differentials do already exist. The captain is paid more than the

gunner's mate. The lieutenant j.g. with fourteen years of service receives over half again as much pay as the beginning j.g. In fact he receives substantially more than do some full lieutenants. Carrier pilots and submariners receive more than their classmates who remain ashore. I emphasize this well-known fact because it is the basis for saying that the real issue is not whether there should be salary differentials, since they already exist, but rather to whom should higher salaries be paid.

Secondly, a serious reenlistment problem exists in all of the services. If the original recruitment problem is much less critical, it is surely in large part because of selective service. However, in the Navy, the reenlistment rate for men completing their first four year enlistment is only about ten per cent. Nearly two-thirds of the enlisted men on active duty in the Navy have seen less than four years of service. In some skills, the reenlistment rate is considerably below the average. For radar petty officers, for example, it is about one in eight. For first cruise men in this rating, it is less than one in sixteen. The Air Force and the Army are having similar experiences. A bombing system repairman costs the Air Force \$22,500 during his first four years of service. In exchange, the Air Force receives from him a year and a half of productive duty. Nine out of ten of these men return to civilian life after their first enlistment. Over the past four years, only one radar repairman has returned for a second enlistment for every two hundred the Army has trained. These data illustrate an important aspect of the problem: The reenlistment rate is markedly lower among men with

expensive training in technical skills.\*

The third fact which should be emphasized is that higher pay would increase the reenlistment rate. This statement has a hypothetical quality which the first two statements do not have. Nevertheless, both logic and experience support it. If we confront the men in some category with a substantial increase in earnings, it is highly probable, other things being equal, that some of them who were planning to leave the service will change their minds. This is, of course, a statistical statement, and there will naturally be individual exceptions. In his testimony before the Symington Committee, Captain David L. Martineau of the Bureau of Personnel chose, in analyzing "the factors causing the loss of skilled personnel," to mention first "the lure of better pay in the civilian economy;" and in discussing the principal remedial actions, he chose to emphasize the reenlistment bonus law of 1954 as an important contributor to the improvement in reenlistment rates over their November 1954 lows.

This is not to say that pay is the only factor, or even the most important one, affecting the reenlistment rate. Far from it. Patriotism and a desire to serve, a sense of purpose and belonging, and a feeling of pride in membership in an outstanding organization are of great importance. In the words of the Cordier report, "Without basic patriotism on the part of its members there can be no Armed Forces." But these considerations should not be permitted to cloud the fact that salaries are important. After all, other professions have their moral compensations

---

\* These data are taken from the testimony of service representatives before the Symington Committee and they refer to the period ending June 1956. More recent information does not indicate that any major improvements are taking place.

too (consider, for example, teaching and medicine), and even the most devoted of Navy men have families to feed, clothe, and educate. The important feature of pay and subsidiary benefits is that unlike the patriotism and devotion of Navy men, they can be increased substantially by legislative action. Thus pay and subsidiary benefits are particularly worth talking about with respect to the reenlistment problem.

I wish to dwell on this point a bit longer because it seems to give rise to so many misconceptions. For example, the services have been using questionnaires among enlisted men who have decided not to reenlist in an attempt to evaluate the relative importance of various factors affecting their decision. The men are asked to rank a list of factors in order of importance. Plans to go to school, dislike of military life and dislike of station assignments typically are ranked ahead of pay. From this it has been concluded that pay is not an important cause of the reenlistment problem and hence that we must look elsewhere for a solution. This conclusion is incorrect. Although the other factors may be important to enlisted men, pay can be used to offset them. Although there is very little that can be done to make military life more palatable to a man who dislikes it, there are simple and obvious ways of increasing his pay.

This is related to another frequent misconception. The fact that some men leave the service even though they can earn no more than their military pay in civilian life is often used as evidence that pay is irrelevant. This notion is wrong. It is based upon the incorrect assumption that given equal income, most men would prefer the military to civilian life. In fact, the evidence does not imply that a pay increase



would not keep many more of these men in the services. Considering the added demands and inconvenience of military life, it would not be at all surprising to find that it is necessary to offer many men more pay than they could earn as civilians in order to attract enough of them. This is particularly true now that such large standing forces must be maintained. Also it should be emphasized that those men whose decision whether or not to remain in the service is affected by salary are no less worthy, no less valuable, or even necessarily less devoted to the service than those who remain.

Finally, we should recall that there are differences in supply and demand conditions in different categories of manpower. The important point was made by Captain Martineau: "Most of our highly skilled technical personnel in all ratings are in heavy demand by industry. Consequently, it has been difficult to retain these men in sufficient numbers." In other words, the Navy is experiencing a shortage of technicians because these men can find a more attractive combination of earnings and working conditions in industry. On the other hand, there is no particular shortage in the less skilled areas.

Within this factual framework, we may now ask ourselves upon what principles should salary differentials be based. Quartermaster Stanley argues that the operators who bear the responsibility should be remunerated as well as are the technicians. But the amount of responsibility, though relevant, is not a sufficient criterion. For example, in combat there are many men on a ship who have it within their power to commit an error which might cause the loss of the ship. Can we therefore conclude that the radar operator should be paid at the same rate as the captain?

What about patriotism or devotion to duty? However commendable they are, it is difficult to see how we can reward them except insofar as they affect actual performance. Perhaps rank? But to suggest rank is to beg the question, for it remains to be determined to whom should be given the higher ranks. Should pay be related to longevity? It is difficult to understand why mere tenure should entitle a man to greater rewards independently of his efforts. Of course, insofar as greater experience renders a man able to perform his duties better it would seem to be relevant to the man's earnings. But then it is the performance and not the longevity which should be rewarded. All of these considerations are relevant, but they fail in themselves to provide sufficient criteria for the determining of salary scales.

Why do these principles fail? They fail for lack of an objective. Surely our goal should be to maximize the over-all effectiveness of the Navy as a fighting force, within the limitations of the budget. If the Navy ought to reward differentially patriotism, responsibility and longevity, it ought to do so because it will lead to a more effective force, for it is clear that the Navy is not in business merely for the purpose of so rewarding them. Patriotism, responsibility and longevity and any other factors which we consider relevant to the determination of salaries must be related to some important over-all objective. Having selected the appropriate objective, we may then try to choose the set of salary scales which will do the most to further its achievement. As a taxpayer, I think that the pay structure should be chosen to maximize Naval effectiveness.

The military budget is a heavy and continuing burden on the economy. Our position in the Cold War demands that our armed forces be continuously at peak effectiveness. The relationship of the present challenge to national security to our limited resources makes inefficient use of the budget a luxury we cannot afford. The nation has a right to the best military establishment that can be bought with the budget allocated for that purpose. The citizens have a right to the best fighting force obtainable within the limits set by the Navy budget, and the members of the Navy share that right.

This prescription may seem impractical in application, but the appearance is deceptive. The maximising of Naval effectiveness within the limitations of the personnel budget has very definite logical implications for salary scales. First of all, it is possible to decide when salary scales are not at optimum levels. For example, if at present scales there is an excess supply in some category of manpower, then salaries for that category could be lowered to bring supply into line with requirements and the money saved could be applied to the raising of pay in categories where there is a greater need for additional men.

In general, the Navy can decide whether the payroll is being divided in the most effective way by making conceptual experiments of the following sort. Suppose that slightly less were offered for the services of men in one category. Then fewer of those men would remain in the service whence the over-all effectiveness of the service would decline. Suppose that the money saved were offered to attract more men in another category. If the increase in effectiveness which would be contributed by these additional men exceeds the decrease resulting from

the loss of men in the first category, then the experiment indicates that the over-all effectiveness of the Navy could be improved at no extra cost. Hence, the budget had previously not been divided in the most efficient way. If, on the other hand, repeated experiments of this sort indicate that no such improvement is possible, then it is safe to conclude that the personnel budget has been divided in such a way as to maximize over-all effectiveness.

Notice the comparison which is made. We think in terms of only the few men who would be lost because of a small pay cut in one category and the few who would be gained by a small pay increase in another. We consider the contribution toward our objective made by those last few men in the first category and we relate it to the cost of retaining them or the savings from releasing them. Then we evaluate the improvement in over-all Naval effectiveness which would result from hiring a few more men in the second category and we relate it to the cost of buying their services. Finally, if the contribution of the extra men in the second category is greater in proportion to the cost of hiring them than is the contribution of the last few men in the first category in relation to the cost of hiring them, then we decide to go ahead and reallocate the money accordingly. When improvements of this sort are no longer possible, then it must be the case that the contribution of the last man hired in each category is proportional to the cost of hiring him.

Now we are able to account for the relevance of the factors which were mentioned earlier. Responsibility does influence the salary attached to a position because men who will take on responsibility and make

important decisions make a major contribution to the organizations they serve. Hence, although such men are relatively scarce, their services are in great demand. Devotion to duty has relevance in that the man who is devoted to his work is apt to perform better than the man who is indifferent. Up to a point, experience is relevant for the man with experience in some line of work will probably be able to contribute more than the man who is inexperienced. But the point I would stress is that these factors are relevant because they influence supply and demand for productive services and it is insofar as they do this that they help to determine salaries.

How can these principles be applied in practice? Some illustrations will be useful. All of the services are experiencing a serious shortage of officers in the four to fourteen years' service bracket and a surplus of junior obligated officers with three years or less of service. Thus it should be clear that an improvement in the attractiveness of the "middle years" in the officer's career and an increased amount of selectivity in the commissioning of junior officers would improve the over-all effectiveness of the corps. Too much money is being spent on the recruiting and training of junior officers and not enough is being spent on inducing them to remain in the service.\* As a result, a great deal of valuable talent and experience is lost to the services.

The experience of all of the services with men completing their first enlistment in fiscal 1956 provides an excellent illustration. The

---

\* Estimates of the surpluses and shortages can be found in the Cordiner report.

men in this category trained in various aspects of electronics reenlisted at the rate of thirteen per cent. The services have estimated that the optimum rate from the point of view of a balanced force (once the force has been built up) would be thirty-three per cent. On the other hand, slightly over a quarter of the first termers in supporting services reenlisted and this, in turn, was two per cent above the optimum rate. "Supporting services" includes vehicle drivers, military police and food service. Of course, the optimum rates might tend to change if electronics experts were paid more than men in the supporting services. Nevertheless, it should be clear that it would improve the quality of the armed forces if the personnel budget were reallocated with less being paid to the men in the "soft skills" and more to the men in electronics.

Again, why should the Navy pay more to the skilled technicians? The criterion is the public interest in military efficiency. More should be paid because more technicians are needed and because it is evident that in the face of strong civilian demand for their services more must be paid if enough technicians are to be induced to remain in the service. Alternatively, why should the Navy pay less, or at least not pay more, for men in soft skills? Because more than enough are enlisting now. The Navy does not need to pay more. There are many more urgent demands on the military budget than for pay increases in categories where they are not necessary. Naturally it would be nice to pay them more as well. But we are working with a limited budget, so that if we pay more than is necessary for some services, we are unable to pay as much as we ought for others.

For a final example, we may look to the Air Force. It has been mentioned already that the Air Force spends about \$22,500 on training and maintaining a bombing system repairman during his first four-year enlistment. In exchange he provides the Air Force with a year and a half of productive services. At the end of the first enlistment nine out of ten of these men return to civilian life. For these men who do not reenlist, the Air Force pays \$22,500 for a year and a half of productive services. This is an annual rate of \$15,000. If one of these men were to reenlist as a first sergeant, over the next four years he would receive an annual base pay averaging about \$2500, or a total of \$10,000. If the other costs to the Air Force in supporting him for this length of time are also about \$10,000, it would be worth four times \$15,000 less \$10,000 of pay and \$10,000 of other costs, or \$40,000 to the service for one more of these men to reenlist. But surely such a large reenlistment bonus would be unnecessary. Yet any individual bonus less than this would result in a pure saving for the Air Force.\*

Once again let me emphasize that my criterion is the public interest. I do not contend that technicians are intrinsically more deserving, more devoted or more talented than the men who operate the machinery. My argument does not even depend upon the average technician being more or less important to the Navy than the average operator. I do not "place the services of the technician above those of the operator." Rather I observe

---

\* Of course this does not imply that the Air Force would be justified in offering such a large bonus. A much smaller one would be sufficient for reenlistment requirements to be met. Also, the Air Force cannot offer a bonus to one man without offering it to all others in the same category. Thus it would have to "waste" it on the ten per cent who would have reenlisted anyway. Nevertheless, the statements in the text are correct as they stand.

that at the present time, the loss of one more scarce electronics expert would reduce the over-all effectiveness of the service more than the loss of one bo'sun's mate and I conclude that the Navy should be willing to pay more to retain the former than to retain the latter. Also, I observe that the demand and the pay for the services of the electronics expert in civilian industry are greater than for the services of a bo'sun's mate, whence I conclude that the Navy must pay more for the former than for the latter.

A frequent objection to this argument is that it neglects the problem of morale. In the words of the New York Times, "any sort of differential in compensation always raises this question." I would question the importance of the objection. First of all, as I have pointed out earlier, differentials already do exist between the earnings of men of the same rank, of the same age and of the same length of service. Yet it is not apparent that these differentials have destroyed the morale of the services. Nor is there any reason to think that a system of pay increases rewarding superior performance would cause any net decrease in service morale. On the contrary, it would tend to improve the morale of just the men the nation should want to reward. Secondly, in evaluating the justice of his earnings, the petty officer who repairs radar is as likely to make comparisons with the earnings of civilian electronics experts as he is with the earnings of, say, a man with equal length of service who is a cook. Finally, a reasonable interpretation of the "morale problem" would be that it is changes in salary levels favoring different people and not differences in the levels themselves which might cause a temporary morale problem. If this is correct, then, once the new salary



pattern is well established, there is no more reason to think that the morale of men in "soft skills" will suffer because they earn less than men in "hard skills" than because they earn less than carrier pilots.

Another objection is that it is not possible to measure the extent to which extra individuals in different categories would contribute to the over-all effectiveness of the Navy. Granted that this would require some redirection in the Navy's thought on the matter, and granted that precision may be out of the question, nevertheless it certainly would not be correct to say that it is impossible to make acceptable estimates. Civilian employers in a competitive situation generally manage to evaluate the contributions of their employees. In some cases, such as the Aircraft Industry where there is intense competition for various sorts of technical personnel, companies become quite expert at comparing the value of a man's services with the cost of keeping him. Furthermore, the Navy has already an extensive system of examinations and fitness reports. The fact that the Navy is able to decide what an optimum force would be in terms of the balance between different ranks, ages and specialties implies that it also can decide in which categories of manpower an increase would contribute most to over-all effectiveness. In other words, what I am saying is that the Navy can and should apply sound principles of operations research to personnel problems.

Since the occasion for this discussion is the appearance of the Cordiner report, some comment on its recommendations is in order. Although the recommendations seem to me to be steps in the right direction, I cannot defend or criticize them in a quantitative way. Nevertheless, in principle they are justified by the analysis which I have presented

insofar as they represent an attempt to readjust salary scales in accordance with supply and demand and productivity considerations. However, as an economist, I would have liked to have seen more reliance placed upon a flexible system of reenlistment bonuses. Such a system would be particularly desirable for the Navy.

When compared to a system which places exclusive reliance on salary scales, a flexible bonus system is seen to have several distinctive advantages. Salary scales are excessively rigid. They can be altered only rarely and then with considerable effort on the part of the services. It is politically and administratively difficult to obtain increased appropriations for benefits which are not immediately apparent. Furthermore, it is not an easy matter to reduce salaries even when the action is appropriate. The Cordiner report contains a "savings clause" specifying that no individual is to have his pay cut. Bonuses on the other hand can be varied to meet supply and demand conditions. This may be quite important. For example, considering the high rate at which the services have been "graduating" electronics experts since World War II, it would not be surprising to see, in a few more years, a saturated civilian demand for such men. At that time, a high salary might not be necessary for retaining these men in sufficient numbers. It would be much easier to reduce the relevant reenlistment bonus than to reduce their salary.

A possible advantage of the reenlistment bonus is that it might be able to be used selectively to attract the men whose performance has been superior. Unfortunately it is usually just these men who are able to command the best salaries in industry and hence whose services are lost to the Navy. Yet another advantage, and this should be an attractive

feature from the point of view of the Navy, is that differences in bonuses tend to interfere less with the chain of command than do differences in salaries. Although pay inversions are frequent today, it is undesirable to have subordinates being paid more than their superiors, even though the exigencies of the manpower market may force such a course upon the services. This is quite likely to be the case with skilled technicians whose position in the chain of command is greatly complicated by the strong demand for their services. Also, if changing salary scales do raise a morale problem, flexible bonuses might cause much less of one, especially if it is generally recognized that bonuses are adjusted in accordance with supply and demand conditions.

The case which I have made for salary differentials has been made from the point of view of the public interest in military efficiency. One may ask is it fair to pay one man more than another if both work as hard, are as patriotic and bear the same risks. Provided that both men are given free choice and equal opportunities and provided that certain standards of comfort and security are met for the man earning less, I assert that it is fair. Certainly our whole political and social system has been erected on that premise and on the position that extreme inequalities in income distribution can be redressed by progressive taxation. If the man earning less does not choose to qualify for the higher paying grade he has not been wronged. If he is unable to qualify, then it is difficult to claim that his work is of comparable quality. A man's output is a product of his ability and his efforts. Generally speaking, rewards are needed to induce people to make greater efforts.

There are those who would argue that the military services should be exempt from the influences of the competitive economy. "After all," they say, "should the hangar deck become a marketplace? Do patriotism and devotion to duty count for naught?" To argue thus is to be unrealistic and to misunderstand the function of the marketplace. Patriotism and devotion to duty are important, but they would count for at least as much under a new competitive set of salary scales as they do now. But this is beside the point. Whether or not we might wish it otherwise, the Navy has serious competition for manpower. This competition is not a bad thing. On the contrary, competition has a logic of its own. It compels the efficient use of resources. If the price of technicians is rising, it is because the demand for their services is increasing. This is a sign for all employers of technicians to use them more sparingly. The appropriate behavior in a competitive situation is efficient behavior. This in large part explains the success of our free enterprise economy. And the principles upon which an efficient enterprise operates are as applicable to the Navy as they are to the auto industry. In an efficient Navy, there is a place for supply and demand on the hangar deck.